

REMARKS

In the Office Action, claims 1-26 were rejected. By the present Response, Applicants have amended claims 9, 10, and 24-26. These amendments do not add any new matter. Upon entry of the amendments, claims 1-26 remain pending in the present patent application. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

On a preliminary note, the Applicants observe that the present Office Action fails to address the status of independent claims 21-23. In particular, though the Office Action Summary sheet indicates that claims 21-23 are rejected, the Office Action does not provide any such rejection and, thus, the Applicants are deprived of any opportunity to meaningfully respond or advance the prosecution of independent claims 21-23. As the Examiner will appreciate, 37 C.F.R. § 1.104 specifically states:

(b) *Completeness of examiner's action.* The examiner's action will be complete as to all matters, except that in appropriate circumstances, such as misjoinder of invention, fundamental defects in the application, and the like, the action of the examiner may be limited to such matters before further action is made.

(c) *Rejection of claims.* . . . (2) In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

37 C.F.R. § 1.104.

Further, the Manual of Patent Examining Procedure, Section 707.07(d) states that the ground of rejection for each claim should be "fully and clearly stated," and Section

707.07(i) states that “[i]n every Office action, each pending claim should be mentioned by number, and its treatment or status given.” In view of these passages, among others, the Applicants stress that the present Office Action is incomplete with regard to the pending claims, particularly independent claims 21-23. Consequently, the Applicants respectfully request that the Examiner issue a communication clarifying the status of claims 21-23 and emphasize that such a communication, if issued as an Office Action, should not be final in view of the incomplete nature of the present Office Action.

Interview Summary

The undersigned thanks the Examiner for the interview conducted via telephone on September 11, 2007. During the interview the Examiner and the undersigned discussed claims 1 and 6 as well as the Nishikawa and Hsieh references relied upon by the Examiner in rejecting claims 1 and 6 respectively. In addition possible amendments were discussed though these amendments are not presented at this time pending the Examiner’s further review of claim 6 and the Hsieh reference. No agreement was reached in the interview regarding the immediate allowability of claims 1 and 6.

Objection to the Drawings

In the Office Action, the Examiner objected to the drawings. Specifically, the Examiner stated:

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- Reference character 94 in figure 4 was not mentioned in the specification.
- Reference character 118 in figure 6 was not mentioned in the specification.

Office Action, p. 2.

Applicants have amended the specification as set forth above to add the reference characters which were inadvertently admitted. Specifically, on page 8, lines 16-23 were replaced to add reference character 94 and on page 14, lines 4-9 were replaced to add reference character 118. In view of these amendments, the Applicants respectfully request that the Examiner withdraw the objection to the drawings.

Claim Objections

In the Office Action, the Examiner objected to Claim 9 because of the following informalities: "Claim 9, line 15, "**the** mask" should be changed to "a mask". Appropriate correction is required." Office Action, p. 2.

The Applicants have amended claim 9 as set forth above to depend from claim 8 and to refer to the multi-level mask recited in claim 8. In view of this amendment, the Applicants respectfully request the Examiner withdraw the objection to claim 9.

Claim Rejection under 35 U.S.C. §101

The Examiner rejected claims 19 and 24-26 under 35 U.S.C. §101, because the claimed invention is directed to non-statutory subject matter. In particular, the Examiner stated that:

In claim 19, "computer code in appropriately programmed computer system" must be "computer readable medium encoded with a computer program" in order to be statutory.
In claims 24-26, "a computer program" must be "a computer readable program storing a computer program" in order to be statutory.

Office Action, p. 3.

Claims 24-26

In view of the Examiner's remarks, the Applicants have amended claims 24-26 to recite “[o]ne or more tangible media encoding a computer program . . .” In view of these amendments, the Applicants respectfully request the Examiner withdraw the objection to claims 24-26.

Claim 19

With regard to claim 19, the Applicants respectfully traverse.

Legal Precedent and Guidelines

According to the Supreme Court, congress intended statutory subject matter to “include anything under the sun that is made by man.” *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09; 206 U.S.P.Q. 193, 197 (1980). Indeed, exclusions of statutory subject matter are limited to laws of nature, natural phenomena and abstract ideas. *See Diamond v. Diehr*, 450 U.S. 175, 185; 209 U.S.P.Q. 1, 7 (1981). Other than these specific exceptions, therefore, nearly anything man made is statutorily patentable subject matter under 35 U.S.C. §101.

In determining when process or method claims include statutory subject matter, the Supreme Court in *Diehr* stated that “[t]ransformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” *See id.* 450 U.S. at 183-185, 209 U.S.P.Q. at 6. In addition to the Supreme Court’s transformation and reduction test, the Federal Circuit has developed a second test which may also be used to determine if a claim recites statutory subject matter, namely does the claim produce a “useful, concrete, and tangible result.” *In re Alappat*, 31 U.S.P.Q.2d 1545, 1557 (Fed. Cir. 1994) (*en banc*). The Federal Circuit further elaborated on this second test by holding that one must look to “the essential

characteristics of the subject matter, in particular, its practical utility.” *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 47 U.S.P.Q.2d 1596, 1602 (Fed. Cir. 1998).

However, explaining this “useful, concrete, and tangible” test, the Federal Circuit has stated “the dispositive inquiry is whether the claim *as a whole* is directed to statutory subject matter.” *In re Alappat*, 31 U.S.P.Q.2d at 1557. The Federal Circuit has specifically stated “the *Alappat* inquiry simply requires an examination of the contested claims to see if the claimed subject matter *as a whole* is a disembodied mathematical concept representing nothing more than a ‘law of nature’ or an ‘abstract idea,’ or if the mathematical concept has been reduced to *some practical application rendering it ‘useful.’*” *AT&T Corp. v. Excel Communications, Inc.*, 50 U.S.P.Q.2d 1447, 1451 (Fed. Cir. 1999) (emphasis added). Therefore, if a claim meets either the transformation and reduction test put forth by the Supreme Court, or if the claim, read as a whole and in light of the specification, produces any useful, concrete, and tangible result, the claim meets the statutory requirements of Section 101. *See id.*

Dependent claim 19 recites statutory subject matter

Turning to the claims, dependent claim 19 recites, *inter alia*, “The system of claim 18, wherein the processing module and the blending module are defined by computer code in an appropriately programmed computer system.” (Emphasis added.) Reading claim 19 “as a whole” requires reading it in conjunction with independent claim 18, which recites the statutory subject matter of “[a] system for processing image data comprising: a memory circuit for storing input image data” Claim 19 is dependent on a system claim that comprises tangible memory elements, among other things, which allow the claim to produce a “useful, concrete, and tangible result” as required by Section 101. See *In re Alappat*, 31 U.S.P.Q.2d at 1557. In view of this dependency and the context of the system claim, the Applicants believe the present rejection of claim 19 is

improper. For at least this reason among others, the Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 101.

Rejections Under 35 U.S.C. §103

The Examiner rejected claims 1-5, 8 and 10 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,673,332 (the “Nishikawa reference”) in view of U.S. Patent No. 6,292,583 (the “Maruo reference”). The Examiner rejected claim 6 under 35 U.S.C. §103(a) as being unpatentable over the Nishikawa and Maruo references as applied to claim 1 above, and further in view of U.S. Patent No. 6,009,140 (the “Hsieh reference”). The Examiner rejected claim 7 under U.S.C. §103(a) as being unpatentable over the Nishikawa and Maruo references, as applied to claim 1 above, and further in view of US Publication No. 2003/0128374 (the “Brothers reference”). The Examiner rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over the Nishikawa and Maruo references, as applied to claim 1 above, and further in view of I. US Patent No. 7,113,306 (the “Nakabayashi reference”). The Examiner further rejected claims 11-16 and 18-20 under 35 U.S.C. §103(a) as being unpatentable over the Nishikawa reference in view of the Hsieh reference. The Examiner also rejected claim 17 under U.S.C. §103(1) as being unpatentable over the Nishikawa and Hsieh references, as applied to claim 11 above, and further in view of the Brothers references. The Applicants respectfully traverse these rejections.

Legal Precedent and Guidelines

The pending claims must be given an interpretation that is reasonable and consistent with the *specification*. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969) (emphasis added); see also *In re Morris*, 127 F.3d 1048, 1054-55, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is “the primary basis for construing the claims.” See *Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (*en banc*).

One should rely *heavily* on the written description for guidance as to the meaning of the claims. *See id.*

Interpretation of the claims must also be consistent with the interpretation that *one of ordinary skill in the art* would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. “The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation.” *See Collegenet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 75 U.S.P.Q.2d 1733, 1738 (Fed. Cir. 2005) (quoting *Phillips v. AWH Corp.*, 75 U.S.P.Q.2d 1321, 1326). The Federal Circuit has made clear that derivation of a claim term must be based on “usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art.” *See id.*

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). In addressing obviousness determinations under 35 U.S.C. § 103, the Supreme Court in *KSR International Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007), reaffirmed many of its precedents relating to obviousness including its holding in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *Graham*, the Court set out an objective analysis for applying the statutory language of §103:

Under §103, the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are to be ascertained, and the level of ordinary skill in the pertinent art are to be resolved. Against this background the obviousness or non-obviousness of the subject matter is to be determined. Such secondary considerations as commercial success, long-felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

KSR, slip op. at 2 (citing *Graham*, 383 U.S. at 17-18).

In *KSR*, the Court also reaffirmed that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 14. In this regard, the *KSR* court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does ... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Id.* at 14-15. Traditionally, to establish a *prima facie* case of obviousness, the CCPA and the Federal Circuit have required that the prior art not only include all of the claimed elements, but also some teaching, suggestion, or motivation to combine the known elements in the same manner set forth in the claim at issue. *See, e.g., ASC Hospital Systems Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (holding that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination.); *In re Mills*, 16 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 1990) (holding that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination). In *KSR*, the court noted that the demonstration of a teaching, suggestion, or motivation to combine provides a “helpful insight” in determining whether claimed subject matter is obvious. *KSR, slip op.* at 14. However, the court rejected a *rigid* application of the “TSM” test. *Id.* at 11. In this regard, the court stated:

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and explicit content of issued patents. The diversity of inventive pursuit and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it

often may be the case that market demand, rather than scientific literature, will drive design trends. *Id.* at 15.

In other words, the *KSR* court rejected a rigid application of the TSM test which requires that a teaching, suggestion or motivation to combine elements in a particular manner must be explicitly found in the cited prior art. Instead, the *KSR* court favored a more expansive view of the sources of evidence that may be considered in determining an apparent reason to combine known elements by stating:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art all in order to determine whether there was an apparent reason to combine in the known elements in the fashion claimed in the patent at issue. *Id.* at 14.

The *KSR* court also noted that there is not necessarily an inconsistency between the idea underlying the TSM test and the *Graham* analysis, and it further stated that the broader application of the TSM test found in certain Federal Circuit decisions appears to be consistent with *Graham*. *Id.* at 17-18 (citing *DyStar Textilfarben GmbH and Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (2006) (“Our suggestion test is in actuality quite flexible and not only permits but *requires* consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs, Inc.*, 464 F.3d 1286, 1291 (2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires a teaching to combine ... “)).

Furthermore, the *KSR* court did not diminish the requirement for objective evidence of obviousness. *Id.* at 14 (“To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006) (“[R]ejections on

obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness"). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."); *see also, In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002) (holding that the factual inquiry whether to combine references must be thorough and searching, and that it must be based on *objective evidence of record*).

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Federal Circuit has warned that the Examiner must not, "fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *In re Dembiczaik*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); *see* M.P.E.P. § 2143.01(VI).

If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *see* M.P.E.P. § 2143.01(V).

The cited references, taken alone or in hypothetical combination, fail to teach or suggest features recited by independent claim 1.

Turning to the claims, the present independent claim 1 recites, *inter alia*, “[1] [a] method for processing image data comprising: processing input image data by identifying features of interest to produce processed image data; [2] characterizing spike noise in the input image data; and [3] performing spike noise dependent blending of data derived from the input image data with processed image data based upon the characterization.” (Emphasis added.) With regard to claim 1, the Examiner cited the Nishikawa reference for disclosing the first and third steps of “processing input data” and “performing spike noise dependent blending.” Office Action, para. 7(1). However, as the Examiner correctly recognized, “Nishikawa et al. does not explicitly mention the characterizing of the spike noise in the input image data.” *Id.*

First, Applicants stress that the blending step of claim 1 utilizes the results of the characterization step, which the Examiner notes is not disclosed in the Nishikawa reference. Hence, the Nishikawa reference *cannot* disclose the recited act of performing *spike noise dependent blending* since the Nishikawa reference does not disclose the characterization of spike noise. In particular, the recited blending of independent claim 1 is performed “based upon the characterization.” Therefore, the spike noise is first characterized in order to use this characterization to perform the blending. For example, in one embodiment, the characterization of spike noise is completed when processing circuitry determines whether individual pixels of the image are likely to represent spike noise. *See* Application, p. 12, lines 25-26; Fig. 3, reference number 112. Then, either

normal blending (e.g., 114) or noise likelihood blending (e.g., 116) is performed depending on how each pixel is characterized. *See Fig. 5.* Consequently, the characterization of the spike noise determines what type of blending is performed.

Because the Nishikawa reference does not disclose characterizing spike noise, it cannot disclose blending data dependent upon a spike noise characterization, as argued by the Examiner. In contrast, the Nishikawa reference appears to teach that each pixel is processed in the same manner. As shown in Fig. 20 of the Nishikawa reference, minimum and maximum values are calculated for each pixel using erosion and dilation operators and the value most different from the original value is selected. See Nishikawa Fig. 20; col. 21, lines 39-45. This same formula is used regardless of whether spike noise exists in the pixel, i.e., each pixel is processed in the same manner as opposed to differentially. In fact, no determination of whether spike noise is present at a pixel appears to be made before the pixel is processed (or after for that matter). This is in contrast to the recited subject matter where spike noise dependent blending is performed *based upon the characterization of spike noise.*

Moreover, the secondary Maruo reference fails to obviate this deficiency because it does not appear to disclose differential blending based on the presence or absence of spike noise. Instead, the Maruo reference discloses first removing noise, then performing a Wavelet transform to separate a defect on an image of a wafer pattern, and finally performing a Hough transform to detect a location and size of the defect. Maruo, Fig. 2A; col. 5, lines 57-63. As the Examiner has recognized, the Maruo reference states that spike shaped noise is detected by the Wavelet transform as an edge. Office Action, para. 7(1); Maruo col. 9, lines 64-66. However, the Maruo reference further explains that if many noises other than pattern noise (i.e. spike noise) are to be detected by Wavelet transform and then Hough transformed, erroneous detection results. Maruo col. 9 line 65 – col. 10 line 2. The erroneous detection can be prevented by *applying a noise removing*

filter prior to performing the Wavelet transform. Maruo col. 9, lines 2-3. Because the Maruo reference recognizes the importance of eliminating the spike noise *prior to* processing, it teaches away from characterizing the spike noise so it can be used in the processing of the image data.

In view of these deficiencies among others, the cited references, taken alone or in hypothetical combination, cannot render obvious the current independent claim 1 and its dependent claims.

The cited references, taken alone or in hypothetical combination, fail to teach or suggest features recited by dependent claim 6.

As discussed above, the pending claims must be given an interpretation that is reasonable and consistent with the specification. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969). Embodiments of the present technique employ differential texture blending of structure and non-structure regions. Application, p. 8, lines 30-31. Weighted blending is performed by blending the input image with the filtered image where a weighting factor (i.e. blending parameter) determines the weight given to each image in the blending. Application, p. 13, lines 6-15. This weighting factor varies depending on whether the pixel is likely to represent spike noise. Application, p. 13, lines 16-22. Accordingly, claim 6 recites, “The method of claim 1, wherein *blending* via a first *weighting factor* is performed on discrete picture elements determined not to exhibit spike noise, and *blending* via a second *weighting factor* is performed on discrete picture elements determined to exhibit spike noise.” (Emphasis added.)

In contrast, the Hsieh reference (relied upon by the Examiner as disclosing this subject matter) teaches classifying structures by whether they contain teeth or do not contain teeth in order to identify high density object boundaries. Hsieh, col. 2, lines 3-6. Then, the neighboring row boundaries are compared to the current row boundaries, and if

the error is below a threshold value the row is shifted. Hsieh, col. 2, lines 24-39. Alternatively, if the error is above a threshold value the boundary is smoothed with the neighboring rows. Hsieh, col. 2, lines 24-39. In short, the filtered image and input image are not blended based on two separate weighting factors, as presently recited in claim 6. Further, the Hsieh reference does not appear to perform any differential operation, blending or otherwise, based on the presence or absence of spike noise. Therefore, absent some showing that the Hsieh reference teaches the recited subject matter of claim 6 (i.e., blending via a first weighting factor when a pixel is determined not to exhibit spike noise and blending via a second weighting factor when a pixel is determined to exhibit spike noise) no *prima facie* case of obviousness is believed to exist with regard to claim 6.

The cited references, taken alone or in hypothetical combination, fail to teach or suggest features recited by dependent claim 8.

Independent claim 8 recites, *inter alia*, “[a] method for processing image data comprising: processing input image data . . . characterizing spike noise in the input image data by rank-order filtering the input image data, computing an absolute difference . . . and generating a multi-level mask of spike noise likelihood based upon the absolute differences; and performing spike noise dependent blending . . . based upon the multi-level mask.” (Emphasis added.)

First, as discussed above in relation to independent claim 1, neither the Nishikawa nor Mauro references, taken alone or in hypothetical combination, teach or suggest the act of “performing spike noise dependent blending of input image data,” as presently recited in claim 8. Therefore, at least in view of this deficiency, no *prima facie* case of obviousness exists with regard to independent claim 8 or its dependents.

Additionally, the cited references, taken alone or in hypothetical combination, fail to teach or suggest performing spike noise dependent blending based upon a multi-level

mask, as presently recited. Specifically, the specification discloses that “in addition to creating a binary mask, it is presently contemplated that the spike noise mask may be a multi-level mask.” Application, p. 12, lines 14-15. In one embodiment, in creating the mask, a threshold intensity value on a histogram (created from absolute value difference images) is selected. Application, p. 11, lines 9-12. Then for each level of the mask, different percentage multipliers of this intensity value are set. Application, p. 12, line 17-20. “Pixels at the various levels will then be associated with different blending parameters . . .” Application, p. 12, lines 21-23. Accordingly, independent claim 8 recites, *inter alia*, “generating a *multi-level mask* of spike noise likelihood based upon the absolute differences; and performing spike noise dependent blending . . . based upon the *multi-level mask*.” (Emphasis added.)

The Examiner has cited to the section of Nishikawa that discloses filtering using erosion and dilation. Office Action, para. 7(6); Nishikawa col. 4, lines 42-49. Contrary to the Examiner’s assertions, the Applicants note that filtering by erosion and dilation is not equivalent to “performing spike noise dependent blending . . . based upon a multi-level mask.” The Nishikawa reference teaches that minimum and maximum values are calculated for each pixel using erosion and dilation operators and the value most different from the original value is selected. *See* Nishikawa Fig. 20; col. 21, lines 39-45. This same formula is used regardless of whether spike noise exists in the pixel.

In contrast, the recited subject matter uses a multi-level mask to categorize pixels into various levels of the mask based on a percentage of a set intensity value. Application, p. 12, lines 17-23. Then, for each level of the mask, a different blending parameter may be used. Application, p. 12, lines 21-23. Thus, the use of the multi-level mask allows for more nuanced blending based upon the degree of certainty that a pixel represents spike noise.

Additionally, regarding claim 8, the Applicants note that the Mauro reference fails to remedy the deficiencies of the Nishikawa reference set forth above. Indeed, the Examiner merely cited the Mauro reference for its alleged teaching related to detecting spike shaped noise in the input image. *See Office Action, para. 7(6).* The Mauro reference does not appear to contemplate the use of multi-level masks in any manner.

In view of these deficiencies among others, the cited references, taken alone or in hypothetical combination, cannot render obvious the current independent claim 8 and its dependent claims.

The cited references, taken alone or in hypothetical combination, fail to teach or suggest features recited by independent claim 18.

The present independent claim 18 recites, *inter alia*, “[a] system for processing image data comprising: a spike noise blending module configured to determine a likelihood that discrete picture elements in the input image data exhibit spike noise, and to blend data derived from the input image data with the processed image data via weighting factors determined based upon the likelihood that the discrete picture elements exhibit spike noise.”

First, the cited references, taken alone or in hypothetical combination, fail to teach or suggest “a spike noise blending module configured to . . . blend data . . . based upon the likelihood that the discrete picture elements exhibit spike noise.” As discussed above in relation to claim 1, the Nishikawa reference does not disclose characterizing spike noise. Therefore, it also does not disclose blending data based upon the likelihood that elements exhibit spike noise. The Nishikawa reference instead appears to teach that each pixel is processed in the same manner where a value most different from the original value is selected. *See Nishikawa Fig. 20; col. 21, lines 39-45.* This is in contrast to the

recited subject matter where the blending module is configured to blend data *based upon the likelihood that the discrete picture elements exhibit spike noise.*

Second, as discussed above in relation to claim 6, the present application discloses a weighting factor which varies depending on whether the pixel is likely to represent spike noise. Application, p. 13, lines 16-22. Accordingly, claim 18 recites “a spike noise blending module configured to . . . blend data derived from the input image data with the processed image data via *weighting factors* determined based upon the likelihood that the discrete picture elements exhibit spike noise.” (Emphasis added.)

The cited references, taken alone or in hypothetical combination, fail to teach or suggest “weighting factors determined based upon the likelihood that the discrete picture elements exhibit spike noise,” as presently recited in claim 18. In contrast, as discussed above in relation to claim 6, the Hsieh reference does not appear to teach blending input image data with processed image data using weighting factors based upon the likelihood that elements exhibit spike noise.

Moreover, the Nishikawa reference also fails to teach weighting factors determined based upon the likelihood that the discrete picture elements exhibit spike noise. In contrast, the Nishikawa reference appears to disclose weighted sums based on half-sized scaling functions. Nishikawa col. 31, lines 28-30. The weighted sum(s) disclosed in the Nishikawa reference are based on scaling functions rather than on the presence or absence of spike noise as disclosed in the recited subject matter. In view of these deficiencies among others, the cited references taken alone or in hypothetical combination, cannot render obvious the current independent claim 18 and its dependent claims.

For at least these reasons among others, the Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103.

Authorization for Extensions of Time and Payment of Fees

In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request thereof. The Commissioner is authorized to charge the requisite extension fee, and any other fees determined to be presently due, to Deposit Account No. 07-0845; Order No. 135059XZ(GEMS:0240).

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: September 11, 2007

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